IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of: Heim et al.	**Group Art Unit**: 1794
Application Serial No: 10/509,178	**Examiner**: Shewareged, B.
Filing Date: September 27, 2004	**Atty. Dk. No.**: 2732-146
Title: Security element and method for producing it	**Confirmation No.**: 5202

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APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 41.37

Sir:

The following comprises Appellants' Brief on Appeal from the rejection, dated February 12, 2009, of claims 1-14 and 16-37. A notice of Appeal was filed on May 12, 2009. This Appeal Brief is accompanied by the required appeal fee set forth in 37 C.F.R. § 1.17(c).

I. REAL PARTY IN INTEREST

As of the filing date of this Brief, the real party in interest is Giesecke & Devrient GmBH, the assignee of this application.

II. RELATED APPEALS AND INTERFERENCES

Appellants are not aware of any co-pending appeal or interference which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-14 and 16-37 are pending. The Office Action dated February 12, 2009 rejected claims 1-14 and 16-37. Appellants previously cancelled claim 15.

IV. STATUS OF AMENDMENTS

Appellants filed no amendment subsequent to the rejection of February 12, 2009.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Appellants' invention relates to a novel method for producing a precious-metal toned object (such as a security element or transfer element) for use in securing documents of value or other products. *See* Specification[1] at p. 1, lines 4-10. The present invention solves the myriad problems associated with prior art methods of producing such a precious metal toned object. For instance the presently claimed method can be used to produce a constant color tone of a coating in a profitable manner. *Id.* at p. 2, line 25 – p. 3, line 1.

As discussed in the Specification, the continued production of a constant color tone over an extended period of time poses a non-trivial problem. *See, e.g., Id.* at pp. 2-4. The problem stems from the fact that, in a vapor deposition process, the components of the alloy forming the precious-metal-colored coating have different vapor pressures and, therefore, evaporate at different rates. *See Id.* at p. 5, lines 1-20. At any given time, the composition of the vapor can differ from the composition of the molten alloy; the vapor may have a greater proportion of

[1] Unless otherwise noted, citations to the specification refer to the substitute specification filed by preliminary amendment on September 27, 2004.

components with high vapor pressures, and, over time, the compositions of the molten alloy and the vapor change due to the different evaporation rates. Specification at p. 5, lines 1-20. As a result, the composition of a deposited coating also changes in the course of the production process. Since the color tone of the precious-metal-colored coating depends on the composition of the vapor, the color tone of the coating can vary during the production process as the composition of the vapor varies. *Id.* Keeping color tone consistency, therefore, imposes high demands on a coating process for a security element.

To address the problem, the present invention provides a method for producing a security element or transfer element for securing documents of value or for protecting products, as recited by claim 1. *See Id.* at p. 2, line 25 – p. 3, line 1. The method includes at least four steps: (1) a vapor depositing step; (2) a measuring step; (3) a comparing step; and (4) a correcting step. The vapor depositing step requires that multicomponent evaporating material be deposited on a substrate. *Id.* at p. 3, lines 2-5. The evaporating material is transformed into a vapor phase by means of an electron beam or resistance heating such that the evaporized evaporating material deposits as a precious-metal-colored coating in the substrate. *Id.* at p. 3, lines 6-8. At the measuring step, the color composition of the coating is measured by reflection measurement. At the comparison step, the measured composition is compared to a desired color composition. *See Id.* at p. 5, line 20 – p. 6, line 7. If any deviations from the desired color composition are detected in the measured color composition, they can be corrected by adjusting one of the heating power and the energy of the electron beam at the correcting step. *Id.*

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection are to be reviewed in this Appeal:

1. Whether the Examiner properly rejected claims 1-14 and 16-37 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,146,773 to Kaule et al. ("Kaule") in view of U.S. Patent No. 4,791,017 to Hofmann et al. ("Hofmann"), U.S. Patent No. 6,202,591 to Witzman et al. ("Witzman"), and the disclosure of the Specification at p. 5, lines 25-27 ("¶ 22 of the Specification").

VII. ARGUMENTS

A. Applicable Law

To determine obviousness, Title 35 requires an examination of the subject matter as a whole to ascertain whether it would have been obvious at the time the invention was made. *See* 35 U.S.C. § 103(a). The Supreme Court held that courts should determine whether the claimed subject matter would have been obvious in the context of the Graham factors. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 405 (2007) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 13-14 (1966)); *see also In re Kahn*, 441 F.3d 977, 985 (Fed. Cir. 2006). In *KSR*, the Supreme Court stated:

> Under § 103, the scope and content of the prior are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unresolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.

KSR, 550 U.S. at 405 (quoting *Graham*, 383 U.S. at 17-18). The Supreme Court also observed that in making an obviousness rejection, the Examiner's analysis should be explicit. *KSR*, 550 U.S. at 418 ("To facilitate review, this analysis should be made explicit.") (citing *In re Kahn*, 441 F.3d at 988 and quoting "[Rejections cannot] be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.").

In *KSR*, the Supreme Court observed that even in the event that the prior art demonstrates each element, "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." 550 U.S. at 418. " " In light of the Supreme Court's decision in KSR, "[i]t remains necessary to show some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Aventis Pharma Deutschland GmbH v. Lupin, Ltd.*, 499 F.3d 1293, 1301 (Fed. Cir. 2007)(citing *KSR*, 550 U.S. at 418). In determining this reasoning, the Federal Circuit counsels "[w]e must still be careful not to allow hindsight reconstruction of references to reach the claimed invention without any explanation as to how or why the references would be combined." *Innogenetics, N.V., v. Abbott Labs.*, 512 F.3d 1363, 1374 n.3 (Fed. Cir. 2008). Addressing motivation in the prior art protects against the use of impermissible hindsight. *In re Kahn*, 441 F.3d at 986. Sources for motivation include the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. *In re Rouffet*, 149 F.3d at 1357.

While *KSR* eschewed a rigid teaching, suggestion, or motivation ("TSM") test, in the wake of *KSR*, the Federal Circuit has continued to utilize a flexible TSM test and observed that

"a flexible TSM test remains the primary guarantor against a non-statutory hindsight analysis." *Ortho-McNeil Pharm., Inc. v. Mylan Labs. Inc.*, 520 F.3d 1358, 1364 (Fed. Cir. 2008). As stated by the Federal Circuit, the flexible TSM test:

> merely assures that the obviousness test proceeds on the basis of evidence – teachings, suggestions (a tellingly broad term), or motivations (an equally broad term) – that arise before the time of the invention as the statute requires.

Id. at 1365. Additionally, dependent claims are nonobvious if the independent claims from which they depend are nonobvious. *Ortho-McNeil Pharm.*, 520 F.3d at 1365 (quoting *In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992)).

When determining what a prior art reference teaches, the prior art reference must be considered in its entirety, *i.e.*, as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

B. *The Examiner improperly rejected claims 1-14 and 16-37 as unpatentable over Kaule in view of Hofmann, Witzman, and ¶ 22 of the Specification.*

The Examiner rejected claims 1-14 and 16-37 under 35 U.S.C. § 103(a) as unpatentable over Kaule in view of Hofmann, Witzman, and ¶ 22 of the Present Specification. Because the Examiner based the rejection on a combination references that fails to disclose or suggest each and every feature of the claimed invention, Appellants request that the Board reverse the rejection of claims 1-14 and 16-37.

In the Office Action, the Examiner cobbles together 4 references in an unsuccessful attempt to show the obviousness of the claimed invention. The combination of references fails

to disclose or suggest each and every feature of the claimed invention. Thus, the rejection is improper.

Kaule discloses none of the vapor depositing, measuring, comparing, or correcting steps required by claim 1. Kaule's failure in this respect makes perfect sense given that Kaule addresses an entirely different problem than the one the present invention addresses. Kaule relates to a "security document and method for producing it which has a magnetic material whose magnetic properties are designed so that they are difficult to imitate." *See* Kaule at col. 1, lines 43–46. While Kaule discloses a security thread that has a magnetic layer of iron or nickel and an additional metallic layer that creates color effects, it, as the Examiner correctly notes, entirely fails to disclose any method for applying the additional metallic layer. *See* Office Action at 2. Seeing this important failure in the disclosure of Kaule to disclose the vapor depositing step of claim 1 as no barrier to a showing of obviousness, the Examiner makes the unsubstantiated allegation that "it can be expected that the layer is produced with the same method as the layer of iron, that is, using resistance heating or electron beam evaporation." *Id.* at p. 2-3. However, even assuming, *arguendo*, that the same application method is used for the magnetic and metallic layers, Kaule fails to teach or suggest the measuring, comparing, or correcting steps recited by Claim 1.

Instead, Kaule discloses "[using] a carrier as a security element which has been coated with a defined, low-coercive magnetic layer" (*see* Kaule at col. 1, lines 52–54), and that "the thickness of the magnetizable layer has substantially no influence on coercivity and can be adjusted between 0.05 and one microns with the usual choice of process parameters" (*see* Kaule at col. 3, lines 8–11). Since Kaule's magnetic layer thickness has substantially no influence on

coercivity, the skilled person in the art would understand that Kaule clearly requires no exact control of the thickness. Additionally, the composition of Kaule's magnetic layer (i.e., iron or nickel) remains constant (as opposed to the vapor composition of the claimed invention) since there is only one component, and, further, the maintenance of a constant color tone is not an issue within the magnetic layer. Therefore, even assuming that the metallic layer in Kaule is applied in the same manner as the claimed magnetic layer, Kaule fails to disclose that the metallic layer is applied in the manner claimed in the present application. Accordingly, Kaule fails to teach or suggest any of the features recited by claim 1.

While the Examiner makes clear that Hofmann does not show the measuring, comparing, and correcting steps recited by claim 1 (*see* Office Action at 5), a discussion of why Hofmann could not cure the deficiencies of Kaule is still warranted. In Hofmann's decorative articles, the gold or gold-containing surface layers are thin and subject to wearing away because the amount of gold is kept as small as possible (due to cost, for example). *See*, *e.g.*, Hofmann at col. 1, lines 14–25. To counter this effect, Hofmann provides a gold-colored under-layer that matches the color of, is harder than, and does not wear away as quickly as, the surface layer. *See* Hofmann at col. 2, lines 14-17. Not only does Hofmann fail to discuss the importance of variations in the thickness and composition of the underlayer, but Hofmann also makes clear that minor variations in the coating layer thickness and composition, accompanied by variations in color tone, will not matter for this underlayer, which becomes visible only once the surface layer is worn away. *See*, e.g., *Id.* at col. 2, lines 5–17. The problem to be solved, then, in Hofmann's case, is one of color matching between two layers having a completely different chemical composition, i.e. a metallic layer and a layer of a carbonitride of titanium, zirconium, hafnium or vanadium, or hafnium

nitride. *Id.* at col. 2, lines19–23. Consequently, minor variations in color tone of the underlayer are negligible and may be tolerated. Hofmann, therefore, both fails to disclose or suggest the measuring, comparing, and correcting steps recited by claim 1 and provides no basis for suggesting the desirability of having such steps to a person of ordinary skill in the art.

Witzman fails to cure the above-described deficiencies of either Kaule or Hofmann. Witzman discloses a vapor deposition process where "the heater power supply and/or substrate drive are regulated by a control circuit responsive to a coating control monitor that measures a property of the coating, which is indicative of the film thickness." Witzman at col. 7, lines 48–58. Witzman, however, is entirely silent with respect to controlling the color of a deposited coating. In fact, Witzman merely discloses producing coatings "having a high optical quality and being essentially free of defects from particulate ejected by the source material," and, in particular, to producing coatings for optical interference products. *See, e.g.*, Witzman at col. 5, lines 26–35. Most notably, Witzman discloses evaporating single components, rather than multicomponent mixtures (like in the claimed invention). Therefore, the composition of the vapor remains constant and so does the composition of the deposited coatings. Witzman, therefore, provides no guidance with respect to maintaining constant compositions and constant color tones in coatings made up of several components. Stated differently, Witzman, like the other references cited by the Examiner, entirely fails to disclose or suggest the measuring, comparing, and correcting steps as recited by claim 1.

The Examiner's reliance on ¶ 22 of the specification is misplaced. This paragraph, in its entirety, reads as follows:

> The vapor deposition of an alloy with a certain composition and a defined layer thickness preferably is controlled via a regulation

> mechanism, with the help of which the vapor-deposited layer is measured in transmitted light and/or reflected light, possibly at several points across the path width of the vapor-deposited substrate. For measuring the transmission and/or reflection optical devices known to persons skilled in the art are used.

Specification at p. 5, lines 22-27 (emphasis added). This paragraph merely discloses that people skilled in the art know about optical devices for measuring transmitted and/or reflected light. The Applicant's Specification in no way discloses that a measuring the color composition of a multicomponent coating by reflection measurement, as recited by claim 1, was known in the prior art. Accordingly, the Examiner's apparent reliance on this "admission" to modify Witzman to show this feature is in error because Witzman, even when modified by the "admission", fails to show this feature of claim 1.

Thus, the combination of Kaule, Hoffman, Witzman, and ¶ 22 of the Specification fails to disclose or suggest each and every feature of claim 1. The Examiner, therefore, has failed to state a *prima facie* case of obviousness of claim 1. Appellants, therefore, request that the Board reverse the Examiner's rejection of claim 1. Claims 2-14 and 16-37, which depend either directly or indirectly from claim 1, are patentable over the Kaule/Hofmann/Witzman/¶22 combination for the same reasons stated above with respect to claim 1 as well as for the additional features they recite. Appellants, therefore, respectfully request that the Bored reverse the rejection of claims 2-14 and 16-37.

CONCLUSION

For the forgoing reasons, appellants respectfully request that the Board reverse all rejections.

AUTHORIZATION TO CHARGE DEPOSIT ACCOUNT

Unless a check for the present Brief on Appeal is submitted herewith for the fee required under 37 C.F.R. §§ 1.192(a) and 1.17(c), please charge said fee to Deposit Account No. 02-2135.

Appellants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee for such extension is to be charged to Deposit Account No. 02-2135.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. (Previously Presented) Method for producing a security element or transfer element for securing documents of value or for protecting products, comprising:

vapor depositing a substrate with a multicomponent evaporating material, which is transformed into the vapor phase by means of electron beam or resistance heating, such that the evaporized evaporating material deposits as a precious-metal-coloured coating on the substrate;

measuring a color composition of the coating by reflection measurement;

comparing the measured color composition to a desired color composition; and

correcting deviations in the color composition of the coating, from the desired color composition, by adjusting at least one of a heating power and an energy of an electron beam.

2. (Original) Method according to claim 1, wherein the precious-metal-coloured coating is gold-coloured.

3. (Previously presented) Method according to claim 1, wherein the evaporating material consists of individual components in separate crucibles.

4. (Previously presented) Method according to claim 1, wherein the evaporating material is an alloy.

5. (Previously presented) Method according to claim 1, wherein the evaporating material comprises one or several metals from the group containing copper (Cu), aluminum (Al), tin (Sn)

and silver (Ag).

6. (Previously presented) Method according to claim 1, wherein the evaporating material comprises Al/Cu or Sn/Cu or Ag/Cu or Ag/Sn/Cu.

7. (Previously presented) Method according to claim 1, wherein the coating comprises 5 to 15 weight per cent aluminum and 85 to 95 weight per cent copper.

8. (Previously presented) Method according to claim 1, wherein the evaporating material comprises at least one foreign metal.

9. (Original) Method according to claim 8, wherein the foreign metal is chosen from the group of iron, manganese, vanadium, chromium, cobalt, silicon, magnesium, zinc or titanium.

10. (Previously presented) Method according to claim 1, wherein on the substrate are deposited different precious-metal-coloured coatings.

11. (Previously presented) Method according to claim 1, wherein the substrate is a plastic film.

12. (Previously presented) Method according to claim 1, wherein the coating is deposited in a layer thickness of 50 to 100 nm.

13. (Previously presented) Method according to claim 1, wherein before the coating process diffraction structures are embossed into the substrate.

14. (Previously presented) Method according to claim 1, wherein after the coating process the substrate is cut in a strip-shaped or ribbon-shaped fashion.

15. (Canceled).

16. (Previously presented) Method according to claim 1, wherein the coating is removed from the substrate and broken into small plates, which, optionally, can be processed into printing ink.

17. (Previously presented) Security element or transfer element for securing documents of value or for protecting products, produced according to claim 1.

18. (Previously presented) Security element or transfer element according to claim 17, wherein the coating deposited on the substrate is at least one coating made of a precious-metal-coloured alloy.

19. (Previously presented) Security element or transfer element according to claim 18, wherein the alloy is gold-coloured.

20. (Previously presented) Security element or transfer element according to claim 18, wherein the alloy comprises copper.

21. (Previously presented) Security element or transfer element according to claim 18, wherein the alloy comprises at least one of aluminum, tin and silver.

22. (Previously presented) Security element or transfer element according to claim 18, wherein the alloy comprises 8 weight per cent aluminum and 92 weight per cent copper.

23. (Previously presented) Security element or transfer element according to claim 18, wherein the alloy comprises at least one foreign metal.

24. (Previously presented) Security element or transfer element according to claim 23, wherein the foreign metal is chosen from the group of iron, manganese, vanadium, chromium, cobalt, silicon, magnesium, zinc or titanium.

25. (Previously presented) Security element or transfer element according to claim 18, wherein the substrate is a plastic film.

26. (Previously presented) Security element or transfer element according to claim 18, wherein the coating has a layer thickness of 50 to 100 nm.

27. (Previously presented) Security element or transfer element according to claim 18, wherein the coating is at least partially overlaid with diffraction structures.

28. (Previously presented) Security element or transfer element according to claim 27, wherein the diffraction structures are embossed in the substrate.

29. (Previously presented) Security element according to claim 1, wherein the security element is a self-supporting label.

30. (Previously presented) Security element according to claim 1, wherein the security element is a security thread.

31. (Previously presented) Security paper for producing documents of value or document of value, characterized in that it has at least one security element according to claim 1.

32. (Original) Security paper or document of value according to claim 31, wherein the security element is a security thread and embedded at least partially in the security paper.

33. (Original) Security paper or document of value according to claim 31, wherein the security element is a transfer element, which is applied to the surface of the security paper.

34. (Previously presented) A method for protecting goods from forgery comprising incorporating therewith a security element or transfer element according to claim 17.

35. (Previously presented) A method for protecting goods from forgery comprising incorporating therewith a security paper or document of value according to claim 31.

36. (Original) Printing ink produced according to claim 16.

37. (Previously presented) Method according to claim 1, further comprising determining a coating layer thickness by transmission measurement and correcting deviations in the coating layer thickness from a desired value by adjusting at least one of a heating power, an energy of an electron beam and a substrate path speed.

IX. EVIDENCE APPENDIX

Not Applicable.

X. RELATED PROCEEDINGS APPENDIX

Not applicable.